ABSTRACT

An apparatus for electron multiplication by transmission that is designed with at least one foil having a front side for receiving incident particles and a back side for transmitting secondary electrons that are produced from the incident particles transiting through the foil. The foil thickness enables the incident particles to travel through the foil and continue on to an anode or to a next foil in series with the first foil. The foil, or foils, and anode are contained within a supporting structure that is attached within an evacuated enclosure. An electrical power supply is connected to the foil, or foils, and the anode to provide an electrical field gradient effective to accelerate negatively charged incident particles and the generated secondary electrons through the foil, or foils, to the anode for collection.